

REMARKS

Pursuant to the present amendment, claims 1, 13, 23, 56, 58 and 60 have been amended and claims 49-55 and 67-73 have been canceled. Thus, claims 1-30 and 56-66 are pending in the present application. No new matter has been introduced by way of the present amendment. Reconsideration of the present application is respectfully requested in view of the amendments and arguments set forth herein.

In the Office Action, claims 1-5, 7-11, 13-16, 18-21, 23-25, 27-29 and 49-66 were rejected under 35 U.S.C. § 102 as allegedly being anticipated by Wu (U.S. Patent No. 6,441,436). Claim 55 was rejected under 35 U.S.C. § 102 as allegedly being anticipated by Riccobene (U.S. Patent No. 6,515,333). Claims 6, 17, 67-68 and 72 were rejected under 35 U.S.C. § 103 as allegedly being obvious over Wu in view of Shigyo (U.S. Patent No. 5,760,442). Claims 12, 22, 30, 70-71 and 73 were rejected under 35 U.S.C. § 103 as allegedly being obvious over Wu. Applicants respectfully traverse the Examiner's rejections.

As the Examiner well knows, an anticipating reference by definition must disclose every limitation of the rejected claim in the same relationship to one another as set forth in the claim. *In re Bond*, 15 U.S.P.Q.2d 1566, 1567 (Fed. Cir. 1990). To the extent the Examiner relies on principles of inherency in making the anticipation rejections in the Office Action, inherency requires that the asserted proposition necessarily flow from the disclosure. *In re Oelrich*, 212 U.S.P.Q. 323, 326 (C.C.P.A. 1981); *Ex parte Levy*, 17 U.S.P.Q.2d 1461, 1463-64 (Bd. Pat. App. & Int. 1990); *Ex parte Skinner*, 2 U.S.P.Q.2d 1788, 1789 (Bd. Pat. App. & Int. 1987); *In re King*, 231 U.S.P.Q. 136, 138 (Fed. Cir. 1986). It is not enough that a reference could have, should have, or would have been used as the claimed invention. "The mere fact that a certain thing may

result from a given set of circumstances is not sufficient.” *Oelrich*, at 326, quoting *Hansgirk v. Kemmer*, 40 U.S.P.Q. 665, 667 (C.C.P.A. 1939); *In re Rijckaert*, 28 U.S.P.Q.2d 1955, 1957 (Fed. Cir. 1993), quoting *Oelrich*, at 326; see also *Skinner*, at 1789. “Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.” *Skinner*, at 1789, citing *Oelrich*. Where anticipation is found through inherency, the Office’s burden of establishing *prima facie* anticipation includes the burden of providing “...some evidence or scientific reasoning to establish the reasonableness of the examiner’s belief that the functional limitation is an inherent characteristic of the prior art.” *Skinner* at 1789.

Moreover, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant’s disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991); M.P.E.P. § 2142. Moreover, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 U.S.P.Q. 580 (CCPA 1974). If an independent claim is nonobvious under 35 U.S.C. § 103, then any claim depending therefrom is nonobvious. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988); M.P.E.P. § 2143.03.

With respect to alleged obviousness, there must be something in the prior art as a whole to suggest the desirability, and thus the obviousness, of making the combination. *Panduit Corp. v. Dennison Mfg. Co.*, 810 F.2d 1561 (Fed. Cir. 1986). In fact, the absence of a suggestion to combine is dispositive in an obviousness determination. *Gambro Lundia AB v. Baxter Healthcare Corp.*, 110 F.3d 1573 (Fed. Cir. 1997). The mere fact that the prior art can be combined or modified does not make the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d 1430 (Fed. Cir. 1990); M.P.E.P. § 2143.01. The consistent criterion for determining obviousness is whether the prior art would have suggested to one of ordinary skill in the art that the process should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. Both the suggestion and the expectation of success must be founded in the prior art, not in the Applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 U.S.P.Q.2d 1438 (Fed. Cir. 1991; *In re O'Farrell*, 853 F.2d 894 (Fed. Cir. 1988); M.P.E.P. § 2142.

Pursuant to the present amendment, independent claims 1, 13 and 23 have been amended to recite that the multiple thickness buried oxide layer is formed between the bulk substrate and the active layer and that the substantially planar upper surface of the buried oxide layer contacts the active layer and the non-planar lower surface of the buried oxide layer contacts the bulk substrate. It is respectfully submitted that, as amended, these independent claims, as well as all claims depending therefrom, are allowable over Wu, considered individually or in combination with any other art of record.

First, it should be noted that at least some of the drawings in Wu do not appear to correspond to the disclosure. For example, Wu's discussion of Figure 2 (in col. 3, ll. 7-16) does

not appear to correspond to the figure disclosed therein. However, other drawings within the Wu patent do appear to correspond to the disclosure.

According to Wu, the device disclosed therein comprises an SOI substrate that includes a silicon substrate, a buried oxide layer and a P-type silicon layer 101. Wu notes that in a preferred embodiment the SOI substrate is a commercially available product formed by a SIMOX method. The thickness of the P-type silicon layer 101 is approximately 3 micrometers. Wu further states that an oxygen implant process is performed to form a silicon dioxide insulating layer 104 in the P-type silicon layer 101. Col. 3, ll. 7-9. Wu notes that the silicon layer 101 is divided into an upper and lower layer which are denoted as the first silicon layer 101a and the second silicon layer 101b. The second silicon layer 101b serves a back gate electrode. Similarly, in the discussion regarding Figure 5 (which does appear to correspond to the disclosure), the substrate 100 is subjected to an oxygen implantation process 204 to form self-aligned oxygen-doped regions 212 in the second silicon layer 101b. Col. 3, l. 62 – Col. 4, l. 2. Thereafter, a heating process is performed to convert the oxygen-doped regions 212 into oxidation regions 212a.

It is believed that Wu does not anticipate nor render obvious the inventions defined in independent claims 1, 13 and 23 for a variety of reasons. For example, independent claims 1, 13 and 23 now recite that the non-planar lower surface of the multiple thickness buried oxide layer contacts the bulk substrate. This is clearly not the case in Wu. In Wu, the oxide layer 104 is formed in the active layer to thereby divide the active layer into two layers 101a and 101b. See, e.g., Figure 5. As noted by Wu, the layer 101b serves as a back-gate electrode. Col. 3, ll. 15-16. As clearly seen in Figures 7, 8 and 9, the oxidation regions 212a do not contact the bulk substrate

103 of the device disclosed therein. Thus, there is no anticipation of amended independent claims 1, 13 and 23.

Moreover, it is respectfully submitted that amended independent claims 1, 13 and 23, and all claims depending therefrom, are not obvious in view of Wu, considered individually or in combination with any other art of record. There is certainly no suggestion in Wu that the oxidation regions 212a disclosed therein be positioned such that they contact the bulk substrate 103. If anything, Wu can be said to teach away from such a configuration. There is simply no motivation suggested or disclosed in the art of record why one skilled in the art would be motivated to form the oxidation regions 212a disclosed in Wu at a deeper depth than what is depicted therein. Presumably, the device disclosed in Wu functions for its intended purpose. Thus, it is unclear why one skilled in the art would be motivated to position the oxidation regions 212a at a location other than that depicted in Wu, much less at the much deeper location so that the oxidation regions 212a would contact the bulk substrate 103. Even if Wu were combined with any other art of record, such a combination of prior would still not teach this limitation. Thus, any obviousness rejection based upon Wu would necessarily be legally improper. A recent Federal Circuit case makes it crystal clear that, in an obviousness situation, the prior art must disclose each and every element of the claimed invention, and that any motivation to combine or modify the prior art must be based upon a suggestion in the prior art. *In re Lee*, 61 U.S.P.Q.2d 143 (Fed. Cir. 2002). Conclusory statements regarding common knowledge and common sense are insufficient to support a finding of obviousness. *Id.* at 1434-35. It is respectfully submitted that any attempt to assert that the inventions defined by the pending claims are obvious in view

of the prior art of record constitutes an impermissible use of hindsight using Applicants' disclosure as a roadmap.

Independent claims 56, 58 and 60 have likewise been amended to recite that the buried oxide layer is formed between the bulk substrate and the active layer and that the substantially planar upper surface of the buried oxide layer contacts the active layer and the non-planar lower surface of the buried oxide layer contacts the bulk substrate. Thus, it is believed that independent claims 56, 58 and 60, and all claims depending therefrom, are allowable over the art of record for at least the reasons set forth above with respect to independent claims 1, 13 and 23.

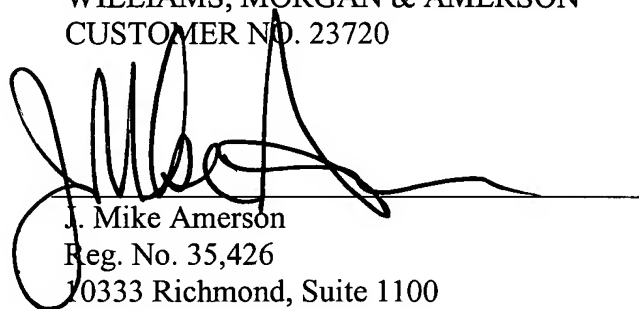
Independent claims 56, 58 and 60 also require the presence of a doped back gate region positioned at least partially in the bulk substrate under the buried oxide layer. It is believed that independent claims 56, 58 and 60 are allowable over the art of record for at least this additional reason. In Wu, it is clear that the active layer is divided into a first silicon layer 101a and a second silicon layer 101b, wherein the second silicon layer 101b serves as a back gate electrode. Col. 3, ll. 13-16. However, it is also abundantly clear that the second silicon layer 101b is positioned above the layer 104 and is not formed at all in the bulk silicon layer 103. Thus, the device disclosed in Wu is in stark contrast to that now set forth in independent claims 56, 58 and 60. As before, there is no suggestion to modify the teachings of Wu so as to arrive at the inventions set forth herein. Again, it is not understood why one skilled in the art would be motivated to undertake efforts to form a back gate electrode at a deeper depth than what is depicted in Wu, particularly beyond the insulating layer 104 described therein, as now recited by independent claims 56, 58 and 60. For at least these additional reasons, it is believe that

independent claims 56, 58 and 60, and all claims depending therefrom, are in condition for immediate allowance.

For at least the aforementioned reasons, it is respectfully submitted that all pending claims are in condition for immediate allowance. The Examiner is invited to contact the undersigned attorney at (713) 934-4055 with any questions, comments or suggestions relating to the referenced patent application.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'J. Mike Amerson', is written over a horizontal line. The signature is stylized with large loops and a long horizontal stroke extending to the right.

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